REMARKS

Claims 1-3, 8 and 10-25 are presented for reconsideration.

In the Office Action, claims 1-3, 8 and 10-25 were rejected under 35 USC 103(a) as being unpatentable over Olson et al in view of Rigney and GB 2269393 (Floge et al).

By this amendment, claim 1 has been amended to correct a typographical error and to further highlight the invention over the prior art. A marked-up version of claim 1 is attached as an appendix, with deletions being in brackets and insertions being underlined.

As pointed out in the previous amendments, applicants' invention is directed to a method of manufacturing an adhesion layer for a heat insulating layer that is applied onto a component part, which includes producing a slip by mixing powders containing certain elements with a binding agent, applying the slip onto the component part, drying the slip at a temperature from room temperature through 300°C, alitizing or aluminizing to cause diffusion joining and compacting of the slip layer to form an adhesive layer with the method being controlled so that the adhesive layer comprises a structure having a grain size less than 75μm and a cavity proportioned from 0 to 40%, and then applying a heat insulating layer on the adhesive layer.

Of the combination of the three references, it is noted that Olson et al teaches aluminizing a MCrAlY-coated superalloy. In the described embodiments, such as Example 1 in column 8, the powders are plasma sprayed onto the surface of a single crystal nickel-based superalloy, then, after plasma spraying, the layer of NiCoCrAlY is glass peened at an intensity of 0.017-0.019 inches N and then an aluminizing process is carried out at approximately 1023°C for a period of three hours in an argon atmosphere. While the Examiner has noted that Olson et al does suggest a slurry deposition in column 7 as an alternative to plasma spraying, the reference is completely silent about what procedures would be done to produce the slurry deposition. It is also submitted that while Olson et al, in column 4, lines 9-45, does state that the aluminum from a pack-aluminizing process will diffuse into and through the MCrAlY coating and into the superalloy substrate, it is submitted

that it does not teach or suggest the diffusion joining and compacting of the slip layer to form the adhesive layer, as recited in independent claims 1 and 21. It is noted that the portion referred to by the Examiner does state that the diffusion zone acts to reduce the rate of crack propagation through the coating and into the substrate, but it is still submitted that it does not specifically teach diffusion joining and compacting of the slip layer, as recited in the claims.

Rigney is directed to a process of coating a substrate with an alloy, which includes applying a slurry of various alloys or elements onto a workpiece, such as by brushing or spraying or dip-coating, and then sintering the slurry to cause it to form a protective cobalt-chromium-aluminum alloy. It is noted that Rigney is completely silent about aluminizing.

The final reference in the combination is the British or UK Patent to Floge et al, who teaches providing a nickel-based alloy rod, coating it with a CoNiCrAlY material by means of a low-pressure plasma injection process, and then machining to remove the material and smooth the surface layer before heat-treating to complete the formation of this adhesive layer, which subsequently has a heat-insulating layer of material applied thereto.

It is specifically noted that none of the three references teach or suggest that the slip includes a mixture of Ce and at least one element of Cr and Ni, as recited in claim 1 as now amended. As pointed out in applicants' specification, on page 3, line 5, Hf or Ce can be employed instead of Y in an MCrAlY alloy. It is submitted that the combination of the three references does not teach or suggest this feature, which is recited in claim 1. Therefore, independent claim 1 and dependent claims 2, 3, 8, 10-20, 24 and 25 are clearly patentable over the teachings of the combination.

It is also submitted that all of the claims in the application are patentable over the combination, since there is no teaching or suggestion for combining the bits and pieces of the three references, as proposed by the Examiner, without relying on applicants' disclosure to suggest what portion of one reference is used with what portion of another reference, while disregarding other features of that other reference and finally combining with the third reference. For example, it is noted that Rigney does not teach or suggest any aluminizing or applying a heat-insulating layer onto the adhesive layer. In a similar manner, while Olson et

al suggests that the coating can be applied by a slurry deposition, the reference is completely silent as to what steps are employed and requires a glass bead peening of the coating prior to the step of aluminizing. Finally, while Floge et al may teach applying a heat-insulating layer onto a specifically prepared alloy layer, the reference requires specific steps in a specific order, which are not recited in applicants' claims. Thus, it is submitted that without applicants' disclosure, a person or ordinary skill in the art would not know what steps to disregard, such as the peening step of Olson et al and the machining steps of Floge et al, when combining the bits and pieces of the three references. For these reasons, it is respectfully submitted that the only teaching for combining the bits and pieces of the three references is applicants' disclosure. Therefore, the combination is improper and contrary to the Patent Laws.

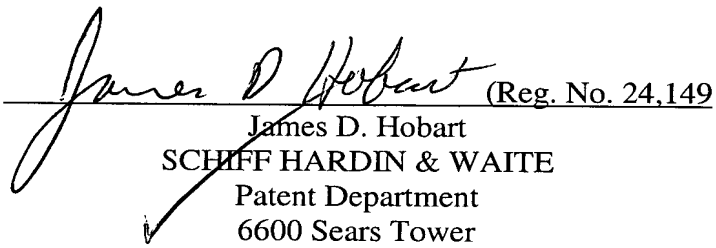
As pointed out hereinabove, even if the combination were proper, it is submitted that it does not teach or suggest Ce as being one of the powders in the slip, as recited in claim 1 and dependent claims 2, 3, 8, 10-20, 24 and 25. Thus, it is submitted that these claims are clearly patentable over the prior art and are allowable.

With regard to claims 21, 22 and 23, it is also submitted that none of the references teach or suggest that the alitizing will cause diffusion joining and compacting of the layer to form an adhesive layer. It is submitted that the Examiner, in holding that this is taught by Olson et al is merely speculating on what is taught by Olson et al, since Olson et al is completely silent about any compacting of the layer which is applied, preferably, by plasma spraying, which is believed to cause compacting before any "aluminizing" has occurred.

For these reasons, it is respectfully submitted that claims 21, 22 and 23 are also patentable along with independent claims and the claims dependent on claim 1.

In view of the amendments and explanations contained hereinabove, it is respectfully submitted that this application is now in condition for immediate formal allowance and further reconsideration to that end is earnestly solicited.

Respectfully submitted,



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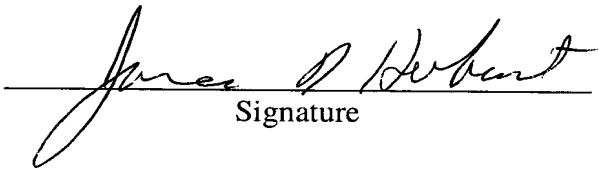

Signature

May 2, 2003
Date

APPENDIX

Version with markings to show changes made.

IN THE CLAIMS:

--1. (Amended) Method for manufacturing an adhesion layer for a heat insulating layer that is applied onto a component part, the method comprising the steps:

a) producing a slip by mixing powders containing Ce and at least one of the elements Cr and Ni [, Ni or CE] with a binding agent;

b) applying the slip onto the component part;

c) drying the slip at temperatures from room temperature through 300°C;

d) alitizing to cause diffusion joining and compacting of the slip layer to form the adhesion layer, whereby the method is controlled so that the adhesion layer comprises a structure having a grain size less than 75µm and a cavity proportion from 0 through 40%; and

e) applying a heat insulating layer on the adhesive layer.--